FIG. 1

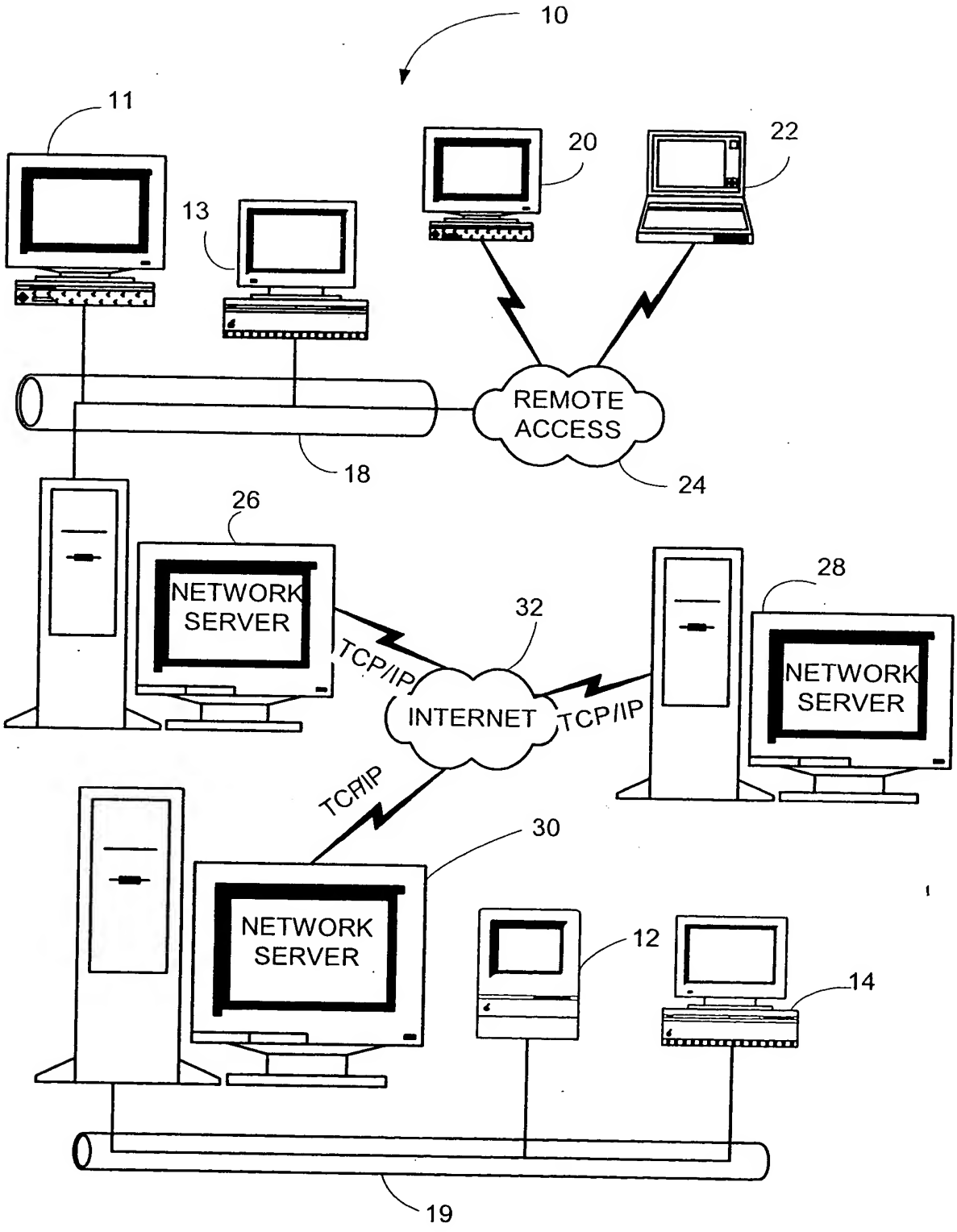

10
11
13
20
22
REMOTE ACCESS
24
18
26
NETWORK SERVER
TCP/IP
32
INTERNET
TCP/IP
28
NETWORK SERVER
TCP/IP
30
NETWORK SERVER
12
14
19

FIG. 2

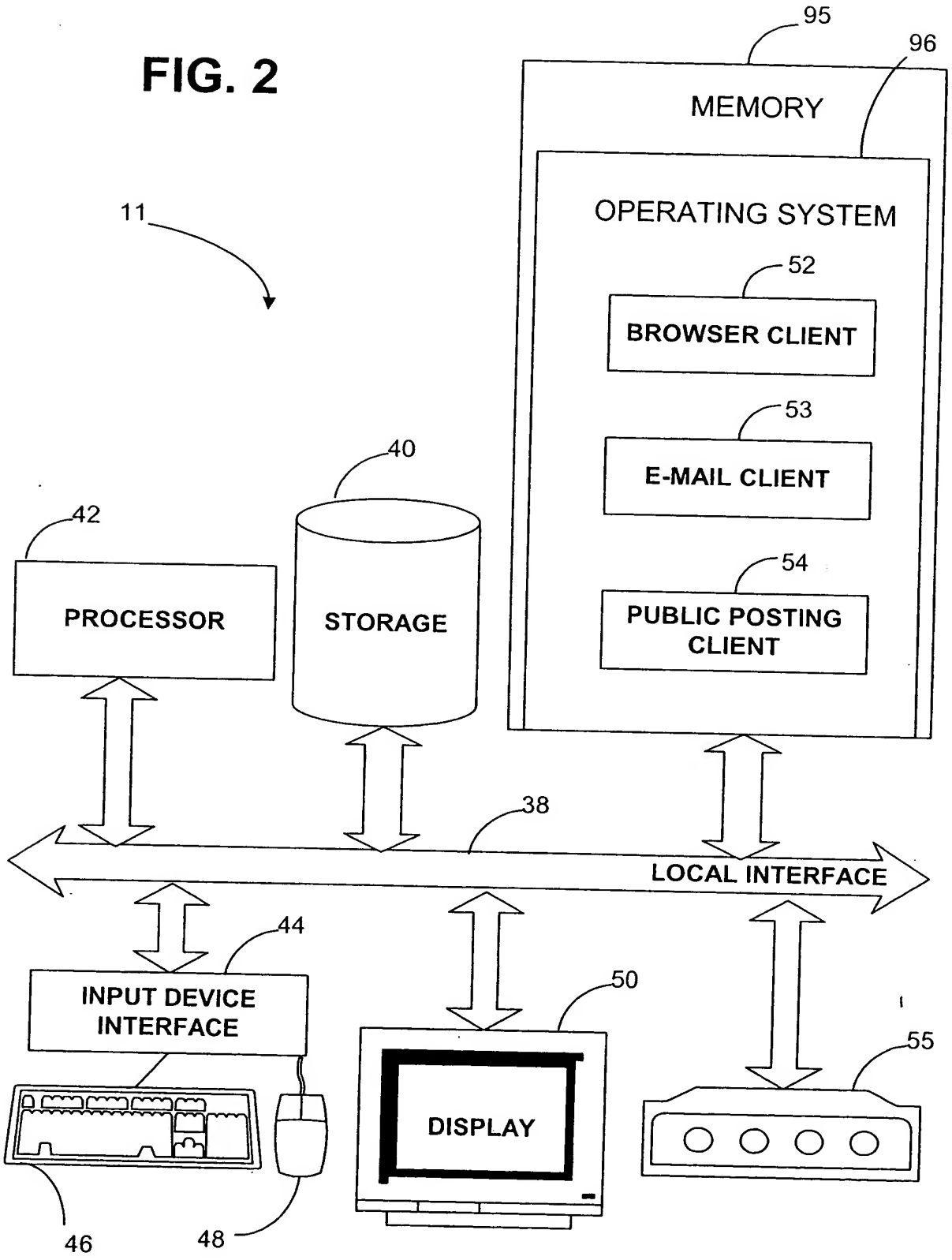

95
96
MEMORY
OPERATING SYSTEM
11
52
BROWSER CLIENT
53
E-MAIL CLIENT
40
54
PUBLIC POSTING CLIENT
42
PROCESSOR
STORAGE
38
LOCAL INTERFACE
44
INPUT DEVICE INTERFACE
50
DISPLAY
55
46
48

FIG. 3

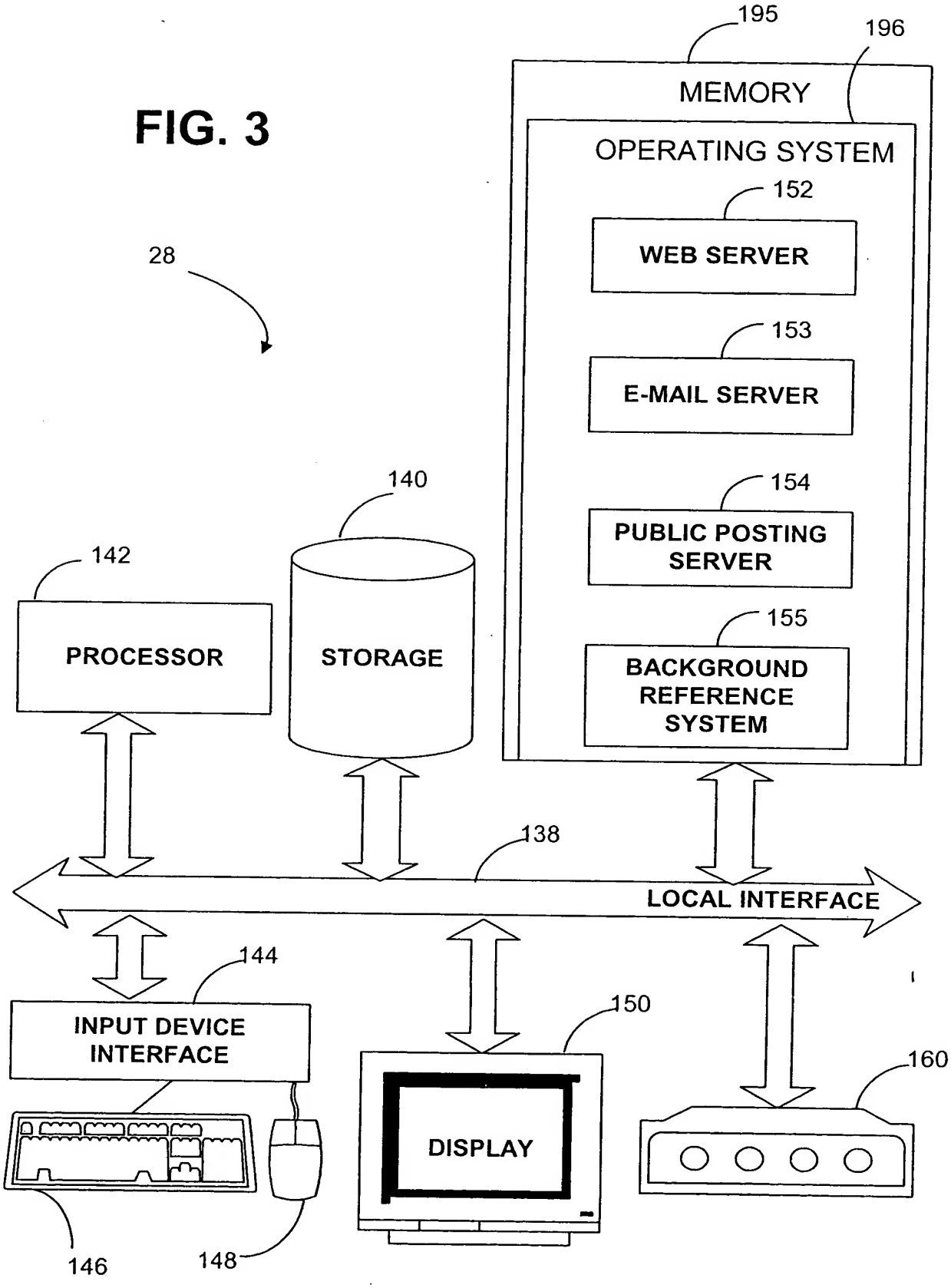

195
196
MEMORY
OPERATING SYSTEM
152
WEB SERVER
153
E-MAIL SERVER
154
PUBLIC POSTING SERVER
155
BACKGROUND REFERENCE SYSTEM
28
140
142
PROCESSOR
STORAGE
138
LOCAL INTERFACE
144
INPUT DEVICE INTERFACE
150
DISPLAY
160
146
148

FIG. 4

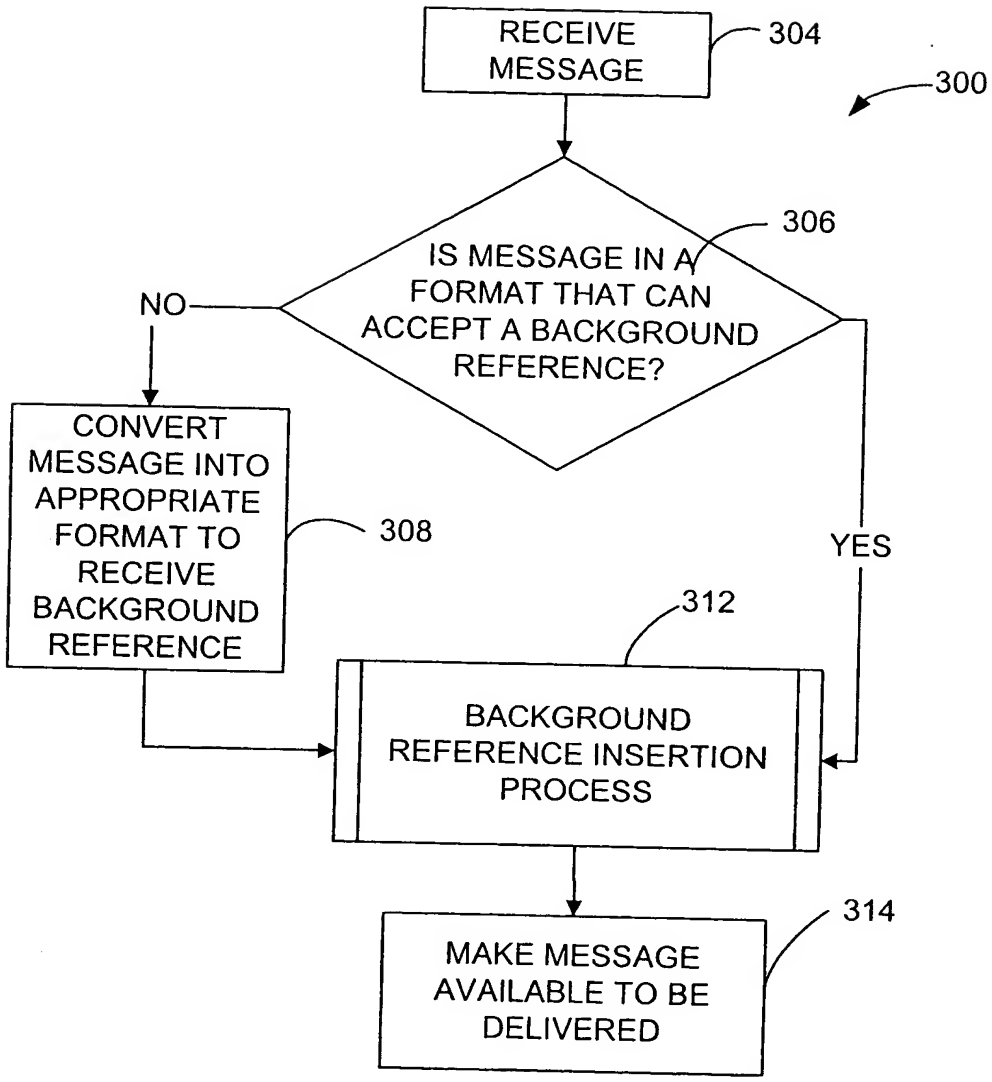
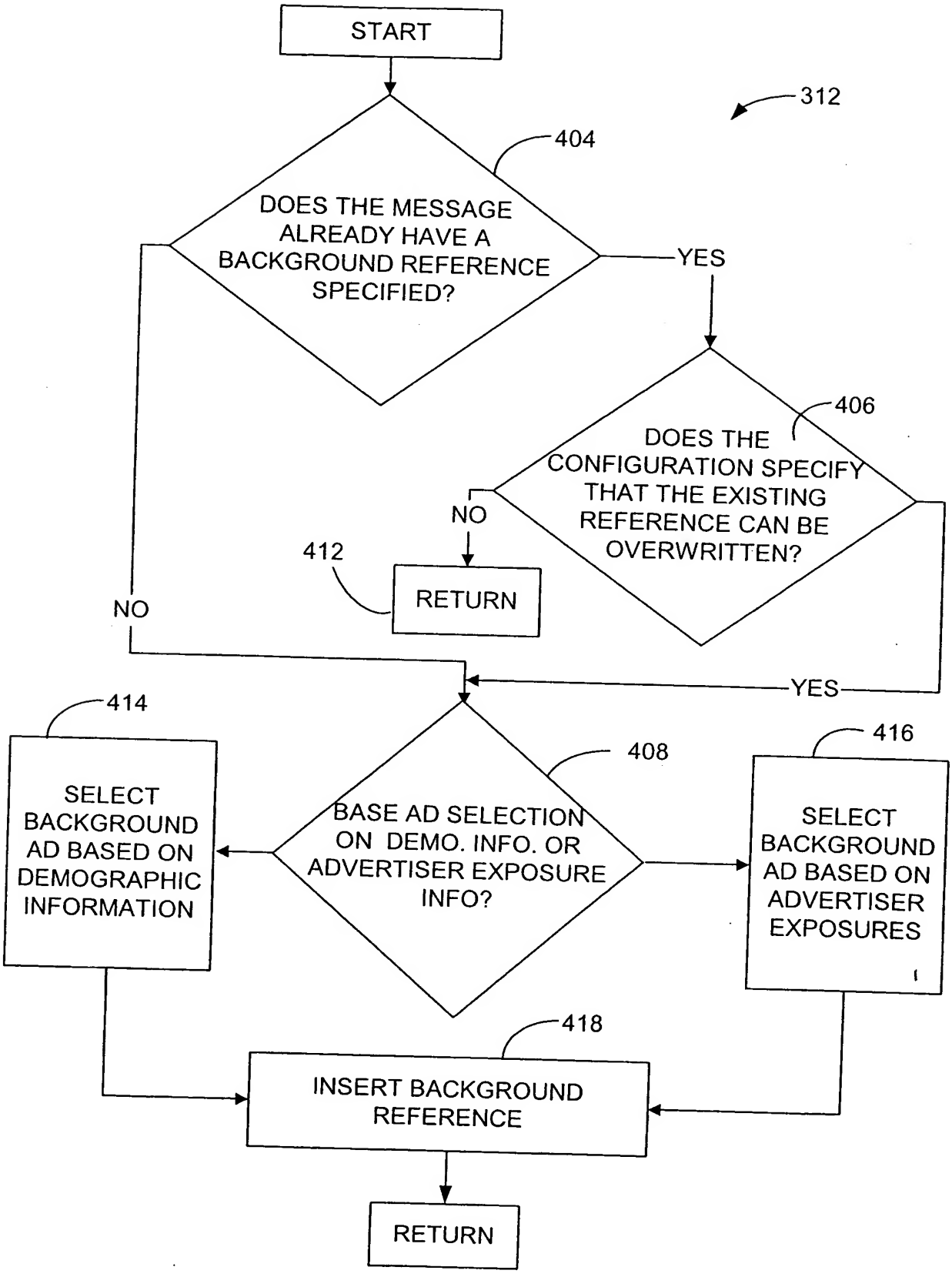

RECEIVE MESSAGE
304
300
IS MESSAGE IN A FORMAT THAT CAN ACCEPT A BACKGROUND REFERENCE?
306
NO
YES
CONVERT MESSAGE INTO APPROPRIATE FORMAT TO RECEIVE BACKGROUND REFERENCE
308
312
BACKGROUND REFERENCE INSERTION PROCESS
MAKE MESSAGE AVAILABLE TO BE DELIVERED
314

FIG. 5


START
312
404
DOES THE MESSAGE ALREADY HAVE A BACKGROUND REFERENCE SPECIFIED?
YES
406
DOES THE CONFIGURATION SPECIFY THAT THE EXISTING REFERENCE CAN BE OVERWRITTEN?
NO
412
RETURN
NO
YES
414
SELECT BACKGROUND AD BASED ON DEMOGRAPHIC INFORMATION
408
BASE AD SELECTION ON DEMO. INFO. OR ADVERTISER EXPOSURE INFO?
416
SELECT BACKGROUND AD BASED ON ADVERTISER EXPOSURES
418
INSERT BACKGROUND REFERENCE
RETURN

From: "Sender" <sender@tkhr.com>
To: "Recipient" <recipient@tkhr.com>
Subject: Test
Date: Tue, 2 Jun 1998 19:07:10 -0400

This is the email message!

FIG. 6

<html>

<h1> Read Message </h1>
<h2>In-Box</h2>
From: "sender" &ltsender@tkhr.com&gt
To: "recipient" &ltrecipient@tkhr.com&gt
Subject: Test
Date: Tue, 2 Jun 1998 19:07:10 -0400

This is the email message!

</html>

FIG. 7

```
<html>
<body background="http://www.exampledomain.com/tkhr_ad.jpg">
<br><br><br><br><br><br>
<h1> Read Message </h1>
<h2>In-Box</h2>
From: "sender" &ltsender@tkhr.com&gt<br>
To: "recipient" &ltrecipient@tkhr.com&gt<br>
Subject: Test<br>
Date: Tue, 2 Jun 1998 19:07:10 -0400<br><br>
        This is the email message!<br>
<br><br>
</html>
```

FIG. 8

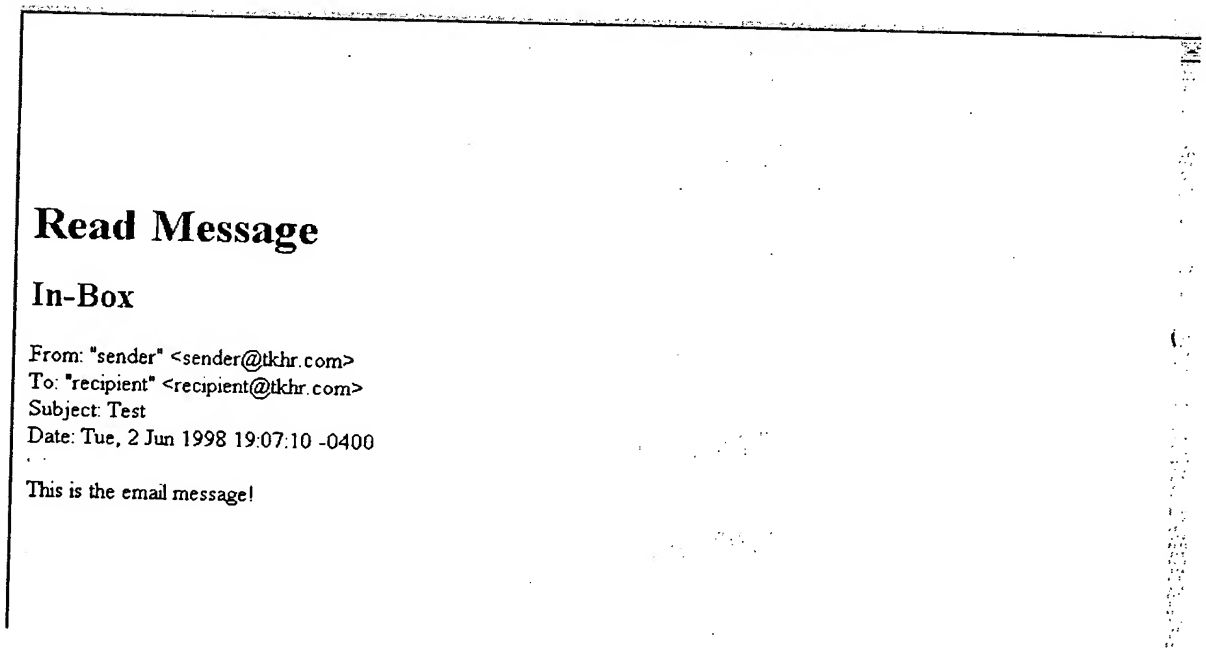
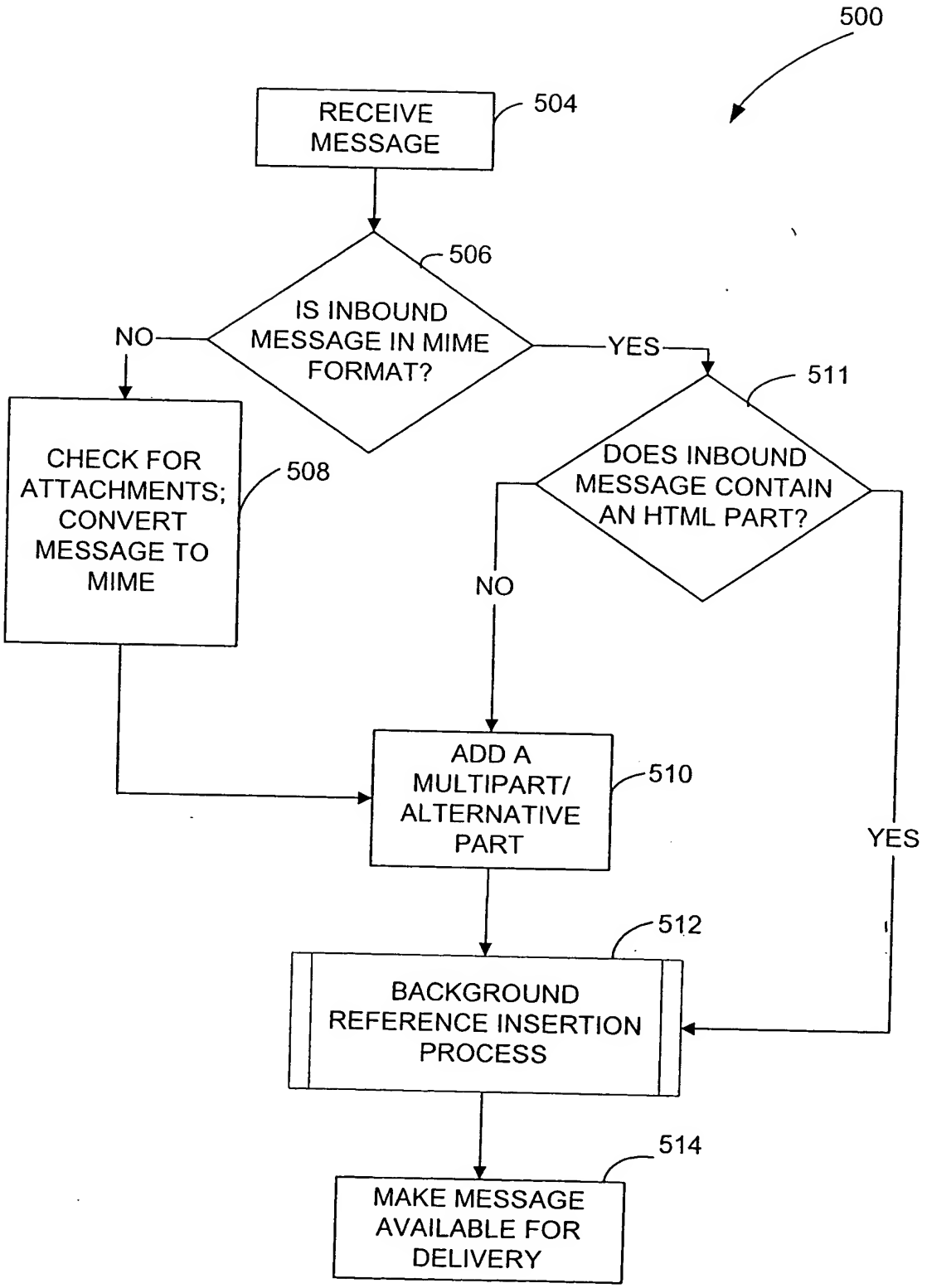


FIG. 9

FIG. 10


500
RECEIVE MESSAGE
504
IS INBOUND MESSAGE IN MIME FORMAT?
506
NO
YES
CHECK FOR ATTACHMENTS; CONVERT MESSAGE TO MIME
508
DOES INBOUND MESSAGE CONTAIN AN HTML PART?
511
NO
YES
ADD A MULTIPART/ ALTERNATIVE PART
510
BACKGROUND REFERENCE INSERTION PROCESS
512
MAKE MESSAGE AVAILABLE FOR DELIVERY
514

From: "Sender" <sender@tkhr.com>
To: "Recipient" <recipient@tkhr.com>
Subject: Test
Date: Tue, 2 Jun 1998 19:07:10 -0400

This is the email message!

begin 666 Clouds.bmp
M_____<`?_____
M_____]P!_
M_____
M_____W``_____
M_____<`
M?_____
M_____]P!_____
M_____W
M``_____
M_____<`=W=W=W=W=W=W=W=W=W
M=W=W=W=W=W=W=W=W=W=W=W=W=W==W="=P``
end

FIG. 11

From: "Sender" <sender@tkhr.com>
To: "Recipient" <recipient@tkhr.com>
Subject: Test

Date: Tue, 2 Jun 1998 20:09:30 -0400
MIME-Version: 1.0
Content-Type: multipart/mixed;
boundary="----=_NextPart_000_008B_01BD8E64.C7C0B150"
This is a multi-part message in MIME format.
------=_NextPart_000_008B_01BD8E64.C7C0B150
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

This is the email message!

------=_NextPart_000_008B_01BD8E64.C7C0B150
Content-Type: image/bmp;
name="clouds.bmp"
Content-Transfer-Encoding: base64
Content-Disposition: attachment;
filename=" clouds.bmp"
//cAf//
////////////////9wB//
////////////////////////////3AH////////////////////////////////////
//////////////////////////////////////cAf//////////////////////////
//9wB/////////////
//3
AH//
/////////////cAd3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3dwA=
------=_NextPart_000_008B_01BD8E64.C7C0B150--

FIG. 12

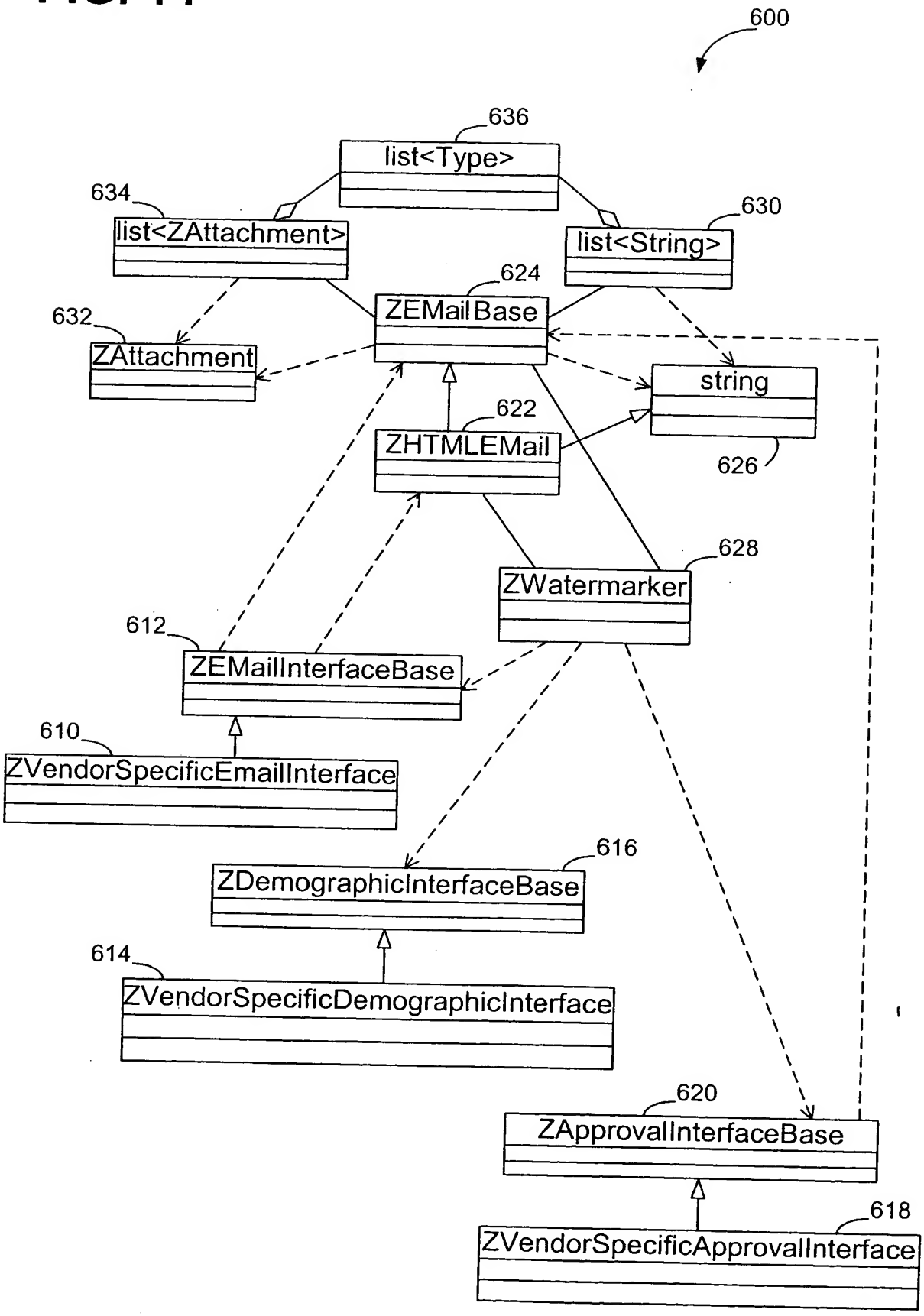
FIG. 13

```
From: "Sender" <sender@tkhr.com>
To: "Recipient" <recipient@tkhr.com>
Subject: Test
Date: Tue, 2 Jun 1998 20:26:53 -0400
MIME-Version: 1.0
Content-Type: multipart/mixed;
        boundary="----=_NextPart_000_008B_01BD8E64.C7C0B150"
This is a multi-part message in MIME format.
------=_NextPart_000_008B_01BD8E64.C7C0B150
Content-Type: multipart/alternative;
        boundary="----=_NextPart_001_008C_01BD8E64.C7C237F0"
------=_NextPart_001_008C_01BD8E64.C7C237F0
Content-Type: text/plain;
        charset="iso-8859-1"
Content-Transfer-Encoding: quoted-printable

This is the email message!

------=_NextPart_001_008C_01BD8E64.C7C237F0
Content-Type: text/html;
        charset="iso-8859-1"
Content-Transfer-Encoding: quoted-printable
<HTML>
<body background="http://www.exampledomain.com/tkhr_ad.jpg">
From: "sender" &ltsender@tkhr.com&gt<br>
To: "recipient" &ltrecipient@tkhr.com&gt<br>
Subject: Test<br>
Date: Tue, 2 Jun 1998 19:07:10 -0400<br>
This is the email message!<br>
</HTML>
------=_NextPart_001_008C_01BD8E64.C7C237F0--
------=_NextPart_000_008B_01BD8E64.C7C0B150
Content-Type: image/bmp;
        name="clouds.bmp"
Content-Transfer-Encoding: base64
Content-Disposition: attachment;
        filename=" clouds.bmp"
//cAf////////////////////////////////////////////////////////////////
///////////////9wB////////////////////////////////////////////////////
////////////////////////////3AH/////////////////////////////////////
//////////////////////////////////////////cAf/////////////////////////
//////////////////////////////////////////////////////9wB////////////
////////////////////////////////////////////////////////////////////3
AH//////////////////////////////////////////////////////////////////
/////////////cAd3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3d3
```

FIG. 14


600
636
list<Type>
634
list<ZAttachment>
630
list<String>
624
ZEMailBase
632
ZAttachment
string
622
ZHTMLEMail
626
628
ZWatermarker
612
ZEMailInterfaceBase
610
ZVendorSpecificEmailInterface
616
ZDemographicInterfaceBase
614
ZVendorSpecificDemographicInterface
620
ZApprovalInterfaceBase
618
ZVendorSpecificApprovalInterface

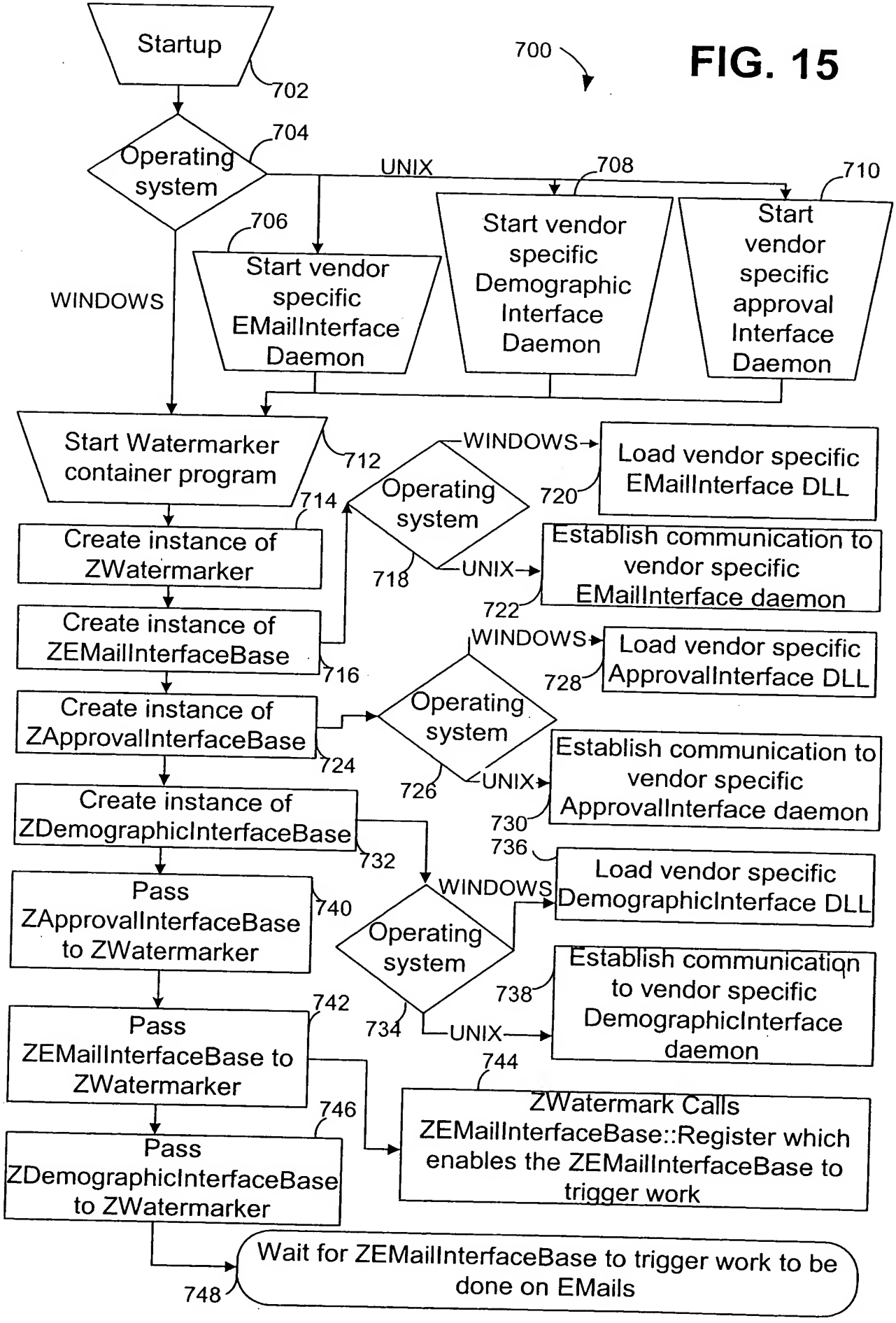
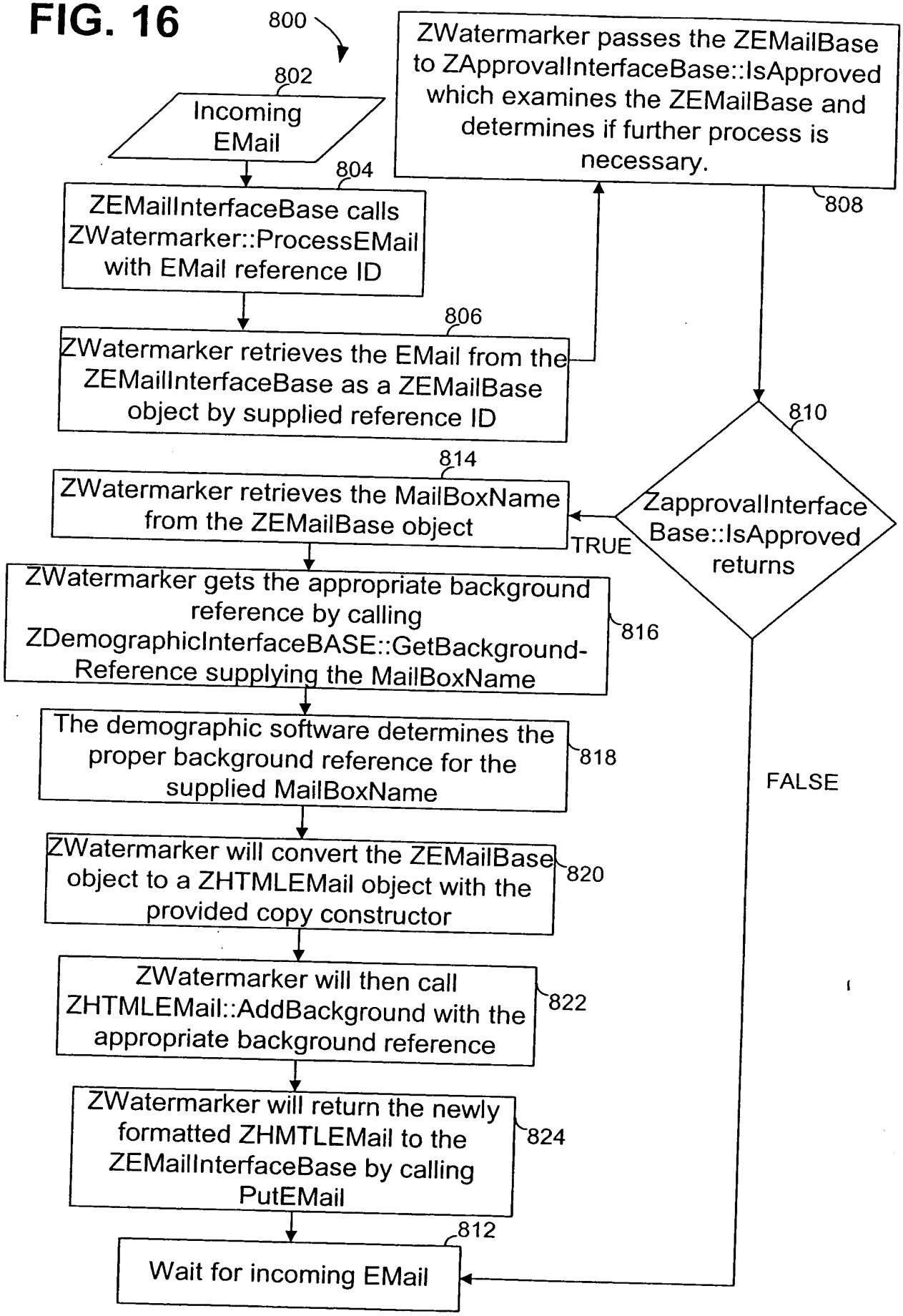

Startup
702
700
FIG. 15
Operating system
704
UNIX
708
710
706
Start vendor specific EMailInterface Daemon
Start vendor specific Demographic Interface Daemon
Start vendor specific approval Interface Daemon
WINDOWS
Start Watermarker container program
712
Operating system
WINDOWS
Load vendor specific EMailInterface DLL
720
714
Create instance of ZWatermarker
718
UNIX
Establish communication to vendor specific EMailInterface daemon
722
Create instance of ZEMailInterfaceBase
716
WINDOWS
Load vendor specific ApprovalInterface DLL
728
Create instance of ZApprovalInterfaceBase
724
Operating system
726
UNIX
Establish communication to vendor specific ApprovalInterface daemon
730
Create instance of ZDemographicInterfaceBase
732
736
Load vendor specific DemographicInterface DLL
WINDOWS
Pass ZApprovalInterfaceBase to ZWatermarker
740
Operating system
738
Establish communication to vendor specific DemographicInterface daemon
734
UNIX
742
Pass ZEMailInterfaceBase to ZWatermarker
744
ZWatermark Calls ZEMailInterfaceBase::Register which enables the ZEMailInterfaceBase to trigger work
746
Pass ZDemographicInterfaceBase to ZWatermarker
Wait for ZEMailInterfaceBase to trigger work to be done on EMails
748

FIG. 16


800
802
Incoming EMail
804
ZEMailInterfaceBase calls ZWatermarker::ProcessEMail with EMail reference ID
806
ZWatermarker retrieves the EMail from the ZEMailInterfaceBase as a ZEMailBase object by supplied reference ID
ZWatermarker passes the ZEMailBase to ZApprovalInterfaceBase::IsApproved which examines the ZEMailBase and determines if further process is necessary.
808
810
ZapprovalInterface Base::IsApproved returns
TRUE
814
ZWatermarker retrieves the MailBoxName from the ZEMailBase object
816
ZWatermarker gets the appropriate background reference by calling ZDemographicInterfaceBASE::GetBackground-Reference supplying the MailBoxName
818
The demographic software determines the proper background reference for the supplied MailBoxName
820
ZWatermarker will convert the ZEMailBase object to a ZHTMLEMail object with the provided copy constructor
822
ZWatermarker will then call ZHTMLEMail::AddBackground with the appropriate background reference
824
ZWatermarker will return the newly formatted ZHMTLEMail to the ZEMailInterfaceBase by calling PutEMail
812
Wait for incoming EMail
FALSE